CLAIMS

1. (Original) An apparatus for determining the extent of movement of an object appearing within two or more images, comprising:

   a first logic configured to classify one or more points in each of the images as either on-object or off-object;

   a second logic configured to compare the classified points in order to determine those points for which the classification differs; and

   a third logic configured to aggregate those points for which the classification differs in order to quantify a measure of the movement of the object.

2. (Original) The apparatus of Claim 1, wherein the first logic further comprises memory employable for the storage of at least one video frame.

3. (Original) The apparatus of Claim 1, further comprising an inverter coupled to the input of the first logic, the inverter configured to invert pixels before the pixels are conveyed to the frame comparison logic.

4. (Original) The apparatus of Claim 1, further comprising a memory for a mask coupled to the input of the first logic, the mask configured to be applied to at least one pixel before the at least one pixel is conveyed to the frame comparison logic.

5. (Original) The apparatus of Claim 1, further comprising a threshold comparator coupled to the input of the first logic, the first logic configured to determine whether a value associated with at least one pixel is above or below a threshold value.

6. (Original) The apparatus of Claim 1, wherein the first logic comprises exclusive-or logic.

7. (Original) The apparatus of Claim 1, further comprising an aggregator configured to accept an output of the first logic.

8. (Original) The apparatus of Claim 7, further comprising a normalizer configured to divide an output of the aggregator by the total number of pixels in a second video frame associated with an image of a test animal.

9. (Original) The apparatus of Claim 1, wherein the memory for storing at least one video frame for processing by the frame comparison logic is at location externally to the first logic.

10. (Original) The apparatus of Claim 1, wherein the second logic calculates a normalized ratio associated with the change of the status of pixels from a first video frame and the second video frame.

11. (Original) A method for determining the extent of movement of an object appearing within two or more images, comprising:

      classifying each point in the images as either on-object or off-object to create classified images; and

      comparing one classified image to at least one other classified image to determine those areas for which the classification differs;

      measuring at least one neurological impulse; and

      correlating the determination of those areas for which the classification differs to the measurement of the at least one neurological impulse.

12. (Original) The method of Claim 11, wherein the step of classifying comprises thresholding the image to create a thresholded image.

13. (Original) The method of Claim 12, further comprising masking the thresholded image.

14. (Original) The method of Claim 12, further comprising removing details from the thresholded image.

15. (Original) The method of Claim 11, wherein the images are monochrome.

16. (Original) The method of Claim 11, wherein each of the images is represented as a finite number of digital picture elements.

17. (Original) The method of Claim 11, further comprising time-stamping the plurality of neurological impulses.

18. (Original) The method of Claim 17, further comprising correlating a centroid calculation to the time-stamped neurological impulses.

19. (Currently Amended) A computer program product for determining the extent of movement of an object appearing within two or more images, the computer program product comprising~~having~~ a computer-readable medium with a computer program embodied thereon, the computer program comprising:

        computer code for classifying each point in the images as either on-object or off-object to create classified images; and

        computer code for comparing one classified image to at least one other classified image to determine those areas for which the classification differs;

        computer code for measuring a plurality of neurological impulses; and

        computer code for correlating the determination for which the classification of the at least one image to the at least one other image differs to the measurement of the at least one neurological impulse.

20. (Original) A processor for determining the extent of movement of an object appearing within two or more images, the processor including a computer program comprising:

        classifying each point in the images as either on-object or off-object to create classified images; and

        comparing one classified image to at least one other classified image to determine those areas for which the classification differs;

        measuring a plurality of neurological impulses; and

correlating the determination for which the classification of the at least one image to the at least one other image differs to the measurement of the at least one neurological impulse.